

# **Project Management Plan (PMP)**

## **Safe Surgery Trainer**

**Version 1.0**

**May 30, 2014**

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**Baseline Date:**

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**PPQA Review - Initials**

**05/14/14 - MRO>**

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# 1 Project Scope

## Background

According to the Institute of Medicine (IOM), up to 690,000 patients are affected by medical errors each year in the United States. Of those, up to 98,000 will die. This makes medical mistakes the six leading cause of death in the nation – worse than breast cancer, Alzheimer’s, and diabetes. There are many root causes, including human error, poor teamwork, and ineffective communication. Studies from both the IOM and the Military Health System (MHS) have concluded that most of these errors are caused by breakdowns in communication which can be prevented through patient safety protocols. Patient safety impacts all members of the medical team, including nurses, corpsmen, and surgical staff.

## Overview

Alion and our partners (UCF, IDEAS, and Synensis Health) have been selected by the Office of Naval Research to develop and build the “Safe Surgery Trainer” (SST) - a game-based trainer for perioperative teams. The immersive engagement provided in a training game enables experiential learning that may increase teamwork skills, cross monitoring, and the adoption of patient safety protocols.

SST is similar to the Damage Control Trainer we built for the US Navy Recruits at RTC Great Lakes. In 2011, that program became standard curriculum for every Navy sailor after it demonstrated a massive 50% improvement in recruit performance. The Safe Surgery Trainer will allow each member of the surgical team to experience all roles within the perioperative system (i.e., nurse, surgeon, anesthetist, etc....). This approach reflects recent research that high performance medical teams perform better by gaining an appreciation and understanding for each other’s role.

## Document Use

The Project Management Plan (PM) is developed as part of Alion’s Capability Maturity Model 3 development processes to help ensure project success. It captures key project data, ensures all aspects of management have been considered, and identifies the overarching plan for the project. The dates, deliveries, and other information contained herein are neither guarantees nor binding commitments. Actual project performance evolves in order to meet the needs of the stakeholders and the successful completion of the project.

## 1.1 Contract and Funding Overview

**Table 1 Contract and Funding Overview**

<b>Contract # / Name</b>	N00014-14-C-0066/ ONR JAMIS 009025-000 BAA 12-013 Medical Modelling	
<b>Contract Type</b>	CPFF	
<b>Contract POP</b>	3/12/14 to 9/30/15	
<b>Contract Value (Ceiling)</b>	\$910,256	
<b>Funding Vehicle(s)</b>	NA	
<b>Funded POP</b>	3/12/14 to 9/30/15	
<b>Funding Authorized Amount(s)</b>	\$910,256.00	
<b>Contractual POCs</b>	Russelle Dunson (ONR) Kim Thompson (Alion)	
<b>Technical POCs</b>	Dr. Ray Perez (ONR) Curtiss Murphy (Alion)	

## 1.2 Subcontract and Funding Overview

**Table 2 Subcontract and Funding Overview**

<b>Subcontract # / Name</b>	Synensis Health	
<b>Subcontract Type</b>	FFP	
<b>Subcontract POP</b>	3/25/14 to 9/30/15	
<b>Subcontract Value (Ceiling)</b>	\$149,283	
<b>Funding Vehicle(s)</b>	NA	
<b>Subcontract Funded POP</b>	3/25/14 to 9/30/15	
<b>Funding Authorized Amount(s)</b>	\$143,000	
<b>Contractual POCs</b>	Frank Harris (Synensis) Scott Hooven (Alion)	
<b>Technical POCs</b>	Kent Robinson (Synensis) Curtiss Murphy (Alion)	

**Table 3 Subcontract and Funding Overview**

<b>Subcontract # / Name</b>	IDEAS	
<b>Subcontract Type</b>	CPFF	
<b>Subcontract POP</b>	3/25/14 to 9/30/15	
<b>Subcontract Value (Ceiling)</b>	\$147,472	
<b>Funding Vehicle(s)</b>	NA	
<b>Subcontract Funded POP</b>	3/25/14 to 9/30/15	
<b>Funding Authorized Amount(s)</b>	\$142,000	
<b>Contractual POCs</b>	John Lux (IDEAS) Scott Hooven (Alion)	
<b>Technical POCs</b>	Kelly Pounds (IDEAS) Curtiss Murphy (Alion)	

**Table 4 Subcontract and Funding Overview**

<b>Subcontract # / Name</b>	University of Central Florida	
<b>Subcontract Type</b>	CPFF	
<b>Subcontract POP</b>	3/25/14 to 9/30/15	

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<b>Subcontract Value (Ceiling)</b>	\$149,606	
<b>Funding Vehicle(s)</b>	NA	
<b>Subcontract Funded POP</b>	3/25/14 to 9/30/15	
<b>Funding Authorized Amount(s)</b>	\$143,606	
<b>Contractual POCs</b>	Tamara Gabrus (UCF) Scott Hooven (Alion)	
<b>Technical POCs</b>	Dr Clint Bowers (UCF) Curtiss Murphy (Alion)	

### 1.3 Contractual Deliverables

**Table 5 Contractual Deliverables Overview**

CDRL / SOW #	Name/Description	Due Date	Notes
SOW 4.0	Project Management Plan	May 31, 2014	
SOW 4.0	Reports (Technical and Financial)	10 <sup>th</sup> of each month, and as appropriate	
SOW 4.0	Presentation Materials	As appropriate	
SOW 4.0	Software Requirements Document	Draft by June 30, 2014, Delivery with Iter 1 Demo (Dec, 2014)	
SOW 4.0	Scenario Design Document	Sept 30, 2014 & June 30, 2015	
SOW 4.0	Prototype - Executable	December, 2014, May, 2015, and Aug, 2015	
SOW 4.0	Prototype - Source	Sept 30, 2015	
SOW 4.0	Research Data	Sept 30, 2015	
SOW 4.0	Final Report	Sept 30, 2015	

### 1.4 System/Product/Service Overview

We propose to build the Safe Surgery Trainer (SST), a game-based trainer designed for Navy medical personnel. This is an Applied Research (6.2) proposal submitted against the Office of Naval Research (ONR) Broad Agency Announcement (BAA) for Medical Modeling and Simulation (MM&S) for Military Training and Education. SST will address the decay of medical safety skills and adoption of patient safety protocols for post-deployment personnel. Figure 1 shows a conceptual rendering of SST; the actual SST user interface will be different and will be designed during the effort.



**Figure 1 SST - Concept Art**

We have a unique research hypothesis: the immersive nature of a game environment can result in experiential learning that increases teamwork skills, cross monitoring, and the application of patient safety protocols. SST will allow each team member to experience all roles within the perioperative system (i.e., nurse, surgeon, corpsman, etc.). This reflects recent research that high-performance medical teams perform better by gaining an appreciation for each other's roles.

We will deliver two products: 1) a functional prototype that retrains personnel in patient safety behaviors and combats medical skill decay in the Navy; and 2) research that advances the state of the art in both the Modeling and Simulation (M&S) and medical domains. The focus is to deliver ready-to-use software that is based on state-of-the-art research.

We follow the same story-based, serious gaming approach used to create the award-winning Damage Control Trainer (shown in Figure 2). DCT was originally funded by ONR and became one of the Navy's most successful training games. It is currently used by every recruit at the Navy's Recruit Training Command (RTC) and has been shown to increase recruit performance by as much as 50-80% with just one hour of effort. To ensure SST will successfully improve the state of Navy medicine, we have brought together three of the original partners, who performed the following roles for DCT: user interface, game engine and game mechanics (Alion); story-driven lessons and audio sequences (IDEAS); and the theory of instructional game design and associated rigorous, scientific research (University of Central Florida). Throughout this effort,

we will leverage many of the development processes, techniques, and technologies that led to DCT's success.

## 2 Referenced Plans and Documents

**Table 6 List of Referenced Plans and Documents**

Plan / Document	Source/Date/Revision	Location
AMSTO Project Personnel: Roles & Responsibilities Guidelines	EPG / Sept 2003	APT
Alion, AMSTO Processes	EPG / multi	PAL
SST – White Paper	Alion – Sept 2012	APT
SST – Technical Proposal	Alion – Oct 2012	APT
Sub-Contracts	Alion – Apr-May 2014	Contracting officers - Scott Hooven, Kim Thompson
Contract: N00014-14-C-0066	ONR 3/12/2014	APT
ONR Kickoff Slides	Alion – 3/25/2014	APT
Scenario Design Document	Alion – TBD	APT
Contract Work Authorization	Alion – 3/24/2014	Email – PE or contract officers workstations

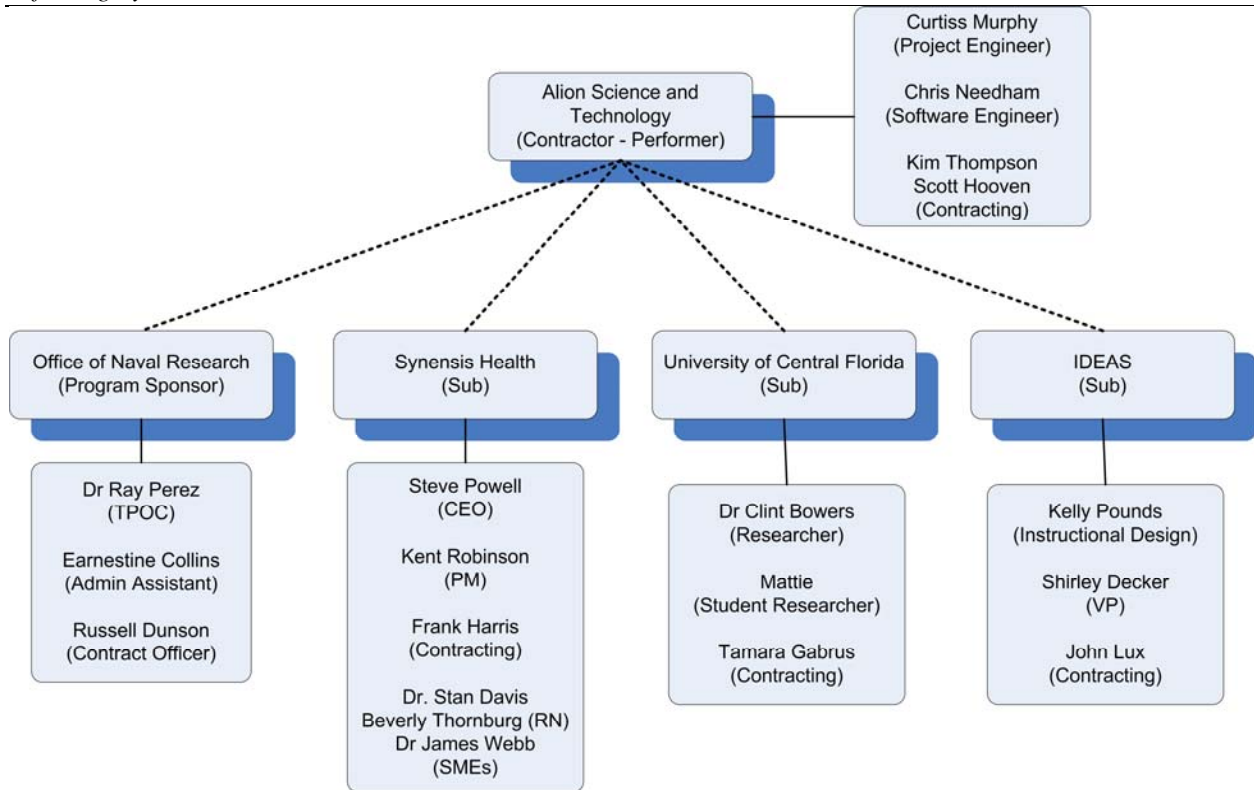
## 3 Project Planning

**Table 7 Project Planning Data**

Planning Data	Review/Update Frequency	Work Product / Document Name	Shared Location
Project Organization	Semi-Annual as needed	PMP	PE workstation or APT
Staffing – Roles	Semi-Annual as needed	PMP / SPM Brief	PE workstation or APT
Staffing – Actual / Projected Hours	Monthly (or more)	Financial Spreadsheets / SPM Brief	PE Workstation
Training/Conferences	Semi-Annual as needed	PMP	PE workstation or APT
Life Cycle Model	Semi-Annual as needed	PMP	PE workstation or APT
Task Id & Scheduling	Monthly / Weekly	POA&M / Note Cards	Trac, APT, PE Desk

### 3.1 Project Organization

The figures below depict the key individuals/roles in each critical organization and the entirety of the organizations involved.



**Figure 2 Critical Team Members**

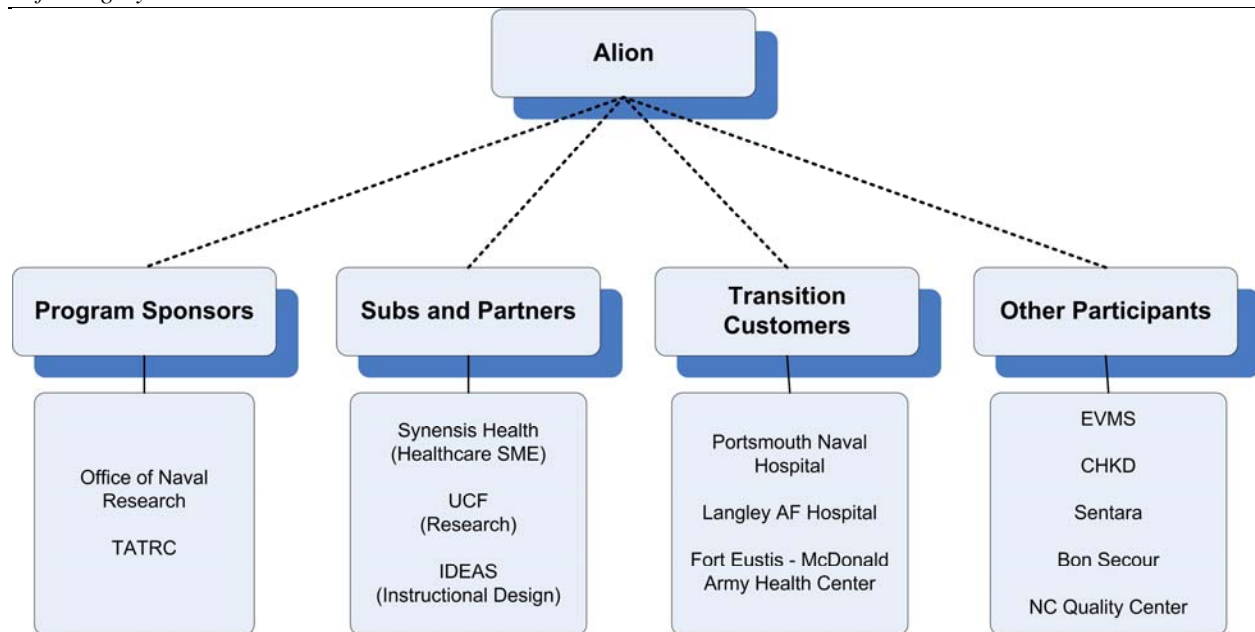


Figure 3 All Stakeholders

### 3.2 Staffing / Personnel Summary

This section describes the high-level staffing plan. Detailed staffing (actual and projected hours) is reflected in the Accounting Spreadsheets.

Table 8 High Level Staffing Plan / Projections

Organizational Role	Project Role	Team Member	Planned % Utilization	Required Skills
Group Contracts Manager	Contract Manager	Kim Thompson	NA	
Division Manager	Senior Project Manager	Bill Culbertson	2%	
Technical Director	Project Engineer (PE)	Curtiss Murphy	50%	
SSWE	PPQA	Mike Oakes	2%	
SWE	Engineer	Chris Needham	100%	

### 3.3 Training / Conferences

Personnel assigned to this Project have received relevant training required to accomplish their task assignments. Most additional training will be hands-on or occur naturally as part of the project effort. Occasionally, team members attend conferences such as the Game Developer's Conference (GDC), the International Modeling & Simulation in Healthcare (IMSH), or Interservice / International Training, Simulation, and Education Conference (I/ITSEC) as needed for presentations, learning, and business development.

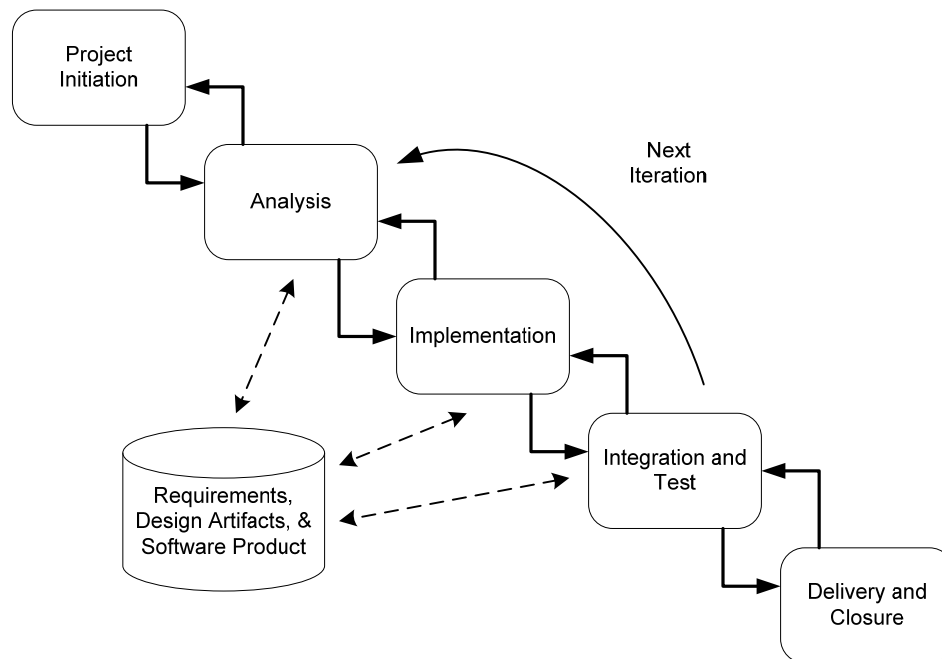
### 3.4 Life Cycle Model

The project team follows principles taken from various parts of the Agile Methodology including SCRUM (see [http://en.wikipedia.org/wiki/Scrum\\_\(management\)](http://en.wikipedia.org/wiki/Scrum_(management)) for more info). Although this

methodology does not specifically describe a life cycle model, it does significantly affect all aspects of the project life cycle. Below are some of the major tenets of the team's operating philosophy.

- Daily Stand Up Meetings
- Major Iterations (Plus Frequent Deliveries)
- Constant Integration (Frequent Functional Testing)
- Open Communication (Internal, External, and Stakeholders)
- Information Radiators (Note Cards)
- Task Ownership (Estimation and Allocation)

In addition, there are a number of lesser aspects of the process including: incremental re-architecture (aka re-factoring), team design, and shared ownership. These behaviors impact how the life cycle model affects development. The team uses a modified, iterative waterfall model. Each iteration includes a variation of the standard phases such as Analysis, Implementation, Test, and Delivery as shown below.



**Figure 4 Project Life Cycle Model**

### 3.5 High Level Task Identification and Scheduling Methodology

The schedule is driven by the overarching requirement to provide frequent, iterative releases of functional software. For this effort, the project is broken into 5 major milestones: Initiation, Iteration 1, Iteration 2, Iteration 3, and Conclusion. Within each milestone, the high-level tasks are defined by the Project Engineer and low-level tasks are planned and managed directly by

team members. This includes the performance of subs and Alion engineers. The overarching schedule is provided in Figure 5.

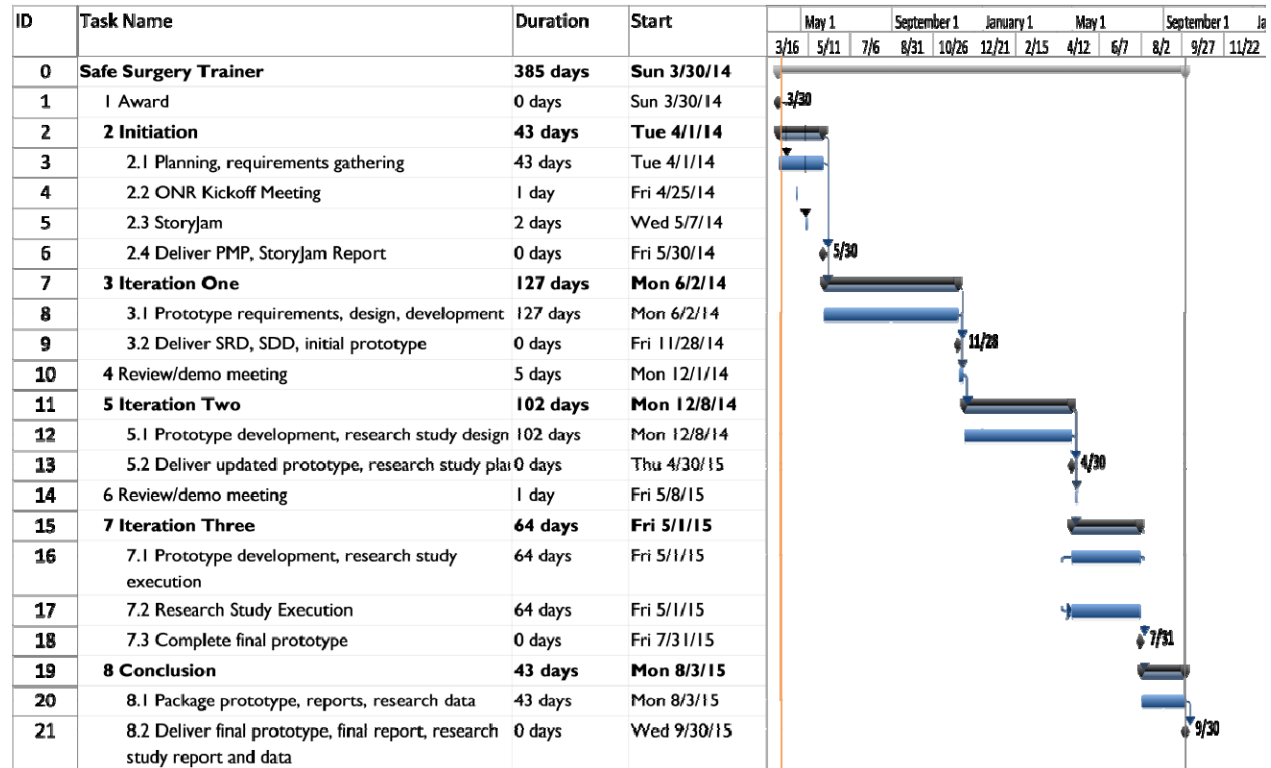


Figure 5 High Level Project Schedule

## 4 Project Management

Project Management is conducted by the Project Engineer (PE) as detailed in Table 9:

Table 9 Project Management Data

Management Data	Review / Update Frequency	Work Product / Document Name	Shared Location
Tasking	Weekly / as needed	Meeting Minutes or Trac	APT / Mantis
Internal Progress Reviews	Daily, Weekly, or as needed	Meeting Minutes or Informal	Email, PE NotePad, or Informal
Status Reports	As Required / Monthly	Document and Email	APT, Email, or PE Workstation
Milestone Reviews	As Scheduled	Various	Email, Briefs, or Working Documents
SPM Briefs	Quarterly	SPM Briefs	APT, PE Workstation, Email
Peer Reviews	Daily, Weekly, or as Required	Content to be Reviewed (Document or Code)	PE Workstation, APT, Subversion
Metrics	As Specified in Table 11	Financial Spreadsheets; SPM Briefs	In external docs
Risk Management	Semi-annually	SPM Briefs; Meeting Minutes;	PE Desk or APT

PMP Maintenance	Semi-annual as needed	PMP	APT
Development Environment	Semi-annual as needed	PMP	APT
Facilities/Tools/Equipment	Semi-annual as needed	PMP	APT

## 4.1 Tasking

Within each milestone, the high-level tasks are defined by the Project Engineer and low-level tasks are planned and managed directly by team members, whether internal or external. Most tasks are tracked via a combination of email, TRAC, or appropriate deliverables such as briefs, reports, PMP, SRD, and SDD.

## 4.2 Reviews

Defined below are some of the more significant reviews which will occur.

### 4.2.1 Internal Periodic Progress Reviews

The Project Engineer (PE) and team members engage in periodic progress reviews. There are many formal and informal techniques for review that vary in length and detail. One or more of these techniques will typically be applied on any given day and at least once a week. Issues discussed at the formal and informal reviews include schedule/task status, issues, problems, risks, priorities, and stakeholder involvement. Guidance and clarification are provided to task performance by PE. The PE is responsible for minutes and action items, when appropriate.

### 4.2.2 External Periodic Progress Reviews

External reviews are conducted by key members of each team (Alion, IDEAS, Synensis, UCF) as well as potential transition customers and external stakeholders. These reviews often take the form of document review and iteration, team discussions, and presentations. As a key aspect of our team principle is Open Communication, these reviews are usually ongoing for most tasks. The results become part of meeting minutes, notes, or are incorporated directly into the next iteration. At a minimum, team reviews and discussions are happening at least once a month.

### 4.2.3 Milestone Reviews

Milestone reviews occur as part of the major project schedule. These reviews are more formal and time is allocated accordingly. For this effort, major milestone reviews would likely happen during Initiation at the project Kickoff, at the end of Iteration 1, 2, and 3, and in the project Conclusion. Milestone reviews often involve deliverables, demos, and meetings with customers.

### 4.2.4 Senior Project Management Reviews / SPM Briefs

The PE prepares and presents senior project management briefs that include financial information (cost, actual labor, planned labor, etc.), schedule, contractual deliverable status (CDRL status), work product status, staffing and program risks. These reviews are held as scheduled by senior project management; typically, monthly or quarterly. Invited attendees include the SPM, PE, and PPQA.

The SPM brief is updated during the meeting, if appropriate, and used as input to next month's brief. Action items assigned during a SPM brief are tracked and addressed at the next month's brief. Minutes are not otherwise taken.

#### 4.2.5 Peer Reviews

Following Agile techniques, the entire team is actively encouraged to engage in peer reviews of each other's work including periodic spot checks to ensure proper style, coding techniques, and testing. In general, peer reviews occur naturally and continuously as part of the development cycle of the project. All documents and significant artifacts are reviewed by at least one other member of the team before publication. Major products are reviewed by Senior Project Management (SPM).

**Table 10 Review Products, Phase, and Participants**

Phase	Work Product	Participants
1	Kickoff Brief	PE, External Team Members, ONR Sponsor
2	Scenario Design Document	PE, Software Engineers, External Team Members, Transition Customers, and ONR Sponsor
2	System Requirements Document	PE, Software Engineers, External Team Members, and ONR Sponsor
1	Project Management Plan	SPM, PE, PPQA Representative, Software Engineers, ONR Sponsor
All	Financial Reports	PE, Contracting and Invoice Officers, ONR Sponsor
2, 3, 4	Prototype Executables	PE, Engineers, External Team Members, ONR Sponsor, Transition Customers
2, 3, 4	Prototype Code	PE, Engineers
5	Final Report	PE, SPM, Contracting Officer, External Team Members

#### 4.3 Status Reports

Status reports are required monthly, quarterly, and during project initiation and conclusion. In addition, a major status report will coincide with I/ITSEC. Though each report has a different purpose, they generally address financial, tasks, research progress, development progress, and other deliverables.

#### 4.4 Progress Status / Earned Value Method

Though this project does not require formal tracking of earned value, progress is tracked on significant areas including financials, deliverables, requirements, tasks, and schedule. Status is tracked appropriately using excel spreadsheets, email, Trac, notecards, and the various reports above.

#### 4.5 Metrics

Metrics are produced as detailed in the table below. Most metrics are reflected in the SPM brief, Trac, and excel workbooks, as well as the monthly, quarterly, and major milestone reports. SPM briefs are maintained on the PE workstation and communicated via email. Monthly financial and quarterly update reports are developed by the PE and submitted to the ONR sponsor via email. Milestone reports are generated by the PE and presented to key members of the larger team.

**Table 11 Metric Descriptions**

<b>Metric</b>	<b>Description</b>	<b>Frequency</b>	<b>Work Product Name / Location</b>
Requirements	Current actual requirements	Each Major Iteration	SRD / APT
Requirements	High/Med/Low completed	Each Major Iteration	SRD / APT
Schedule	The POA&M schedule outlines high level tasking and milestones	Quarterly	Schedule / PMP
Cost	Labor, Travel, Sub, ODC's – planned & actual	Monthly	Financial SS / SPM Brief
Staffing	Planned and Actual Hours	Monthly	Financial SS
Staffing	Actual Hours	Each pay period	Financial SS / SPM Brief – PAR
Tasking	Major tasks in Trac, Minor tasks on cards	As appropriate per phase	Trac, Note cards

## ***4.6 Risk Management***

All members of the team are encouraged to raise risks and issues at periodic progress review meetings. Risks raised are discussed by the Project Team and documented by PE. Risks are monitored periodically by the PE and the project team and communicated appropriately to internal and external stake holders. Risk mitigation strategies are coordinated with and consensus attained with all applicable stakeholders.

## ***4.7 PMP Maintenance***

This PMP is maintained by the Project Engineer. The original version is reviewed and agreed to by internal team members and approved by the Senior Project Manager. Minor updates are maintained by the PE between releases and uploaded to the APT.

## ***4.8 Development Environment – Work in Progress***

Development efforts will be tracked using Subversion (SVN) versioning software. Code, documents, and other tangibles will be added to the SVN repository. Updates and milestones are tagged in order to maintain the ability to recreate the product as of any milestone. Status reports and other formal and informal reviews are stored via email, APT, or the PE's workstation. Major contract deliverables are uploaded to the APT.

## ***4.9 Facilities / Tools / Equipment***

The main tools to be employed on the project and their purpose are identified in Table 12.

**Table 12 Project Facilities, Tools, and Equipment**

<b>Facilities / Tools / Equipment</b>	<b>Purpose of Facility / Tool / Equipment</b>
Subversion	Source code revision control
APT	Project management, document storage
Unity	Game development engine
Trac	Issue, defect, and task tracking

<b>Facilities / Tools / Equipment</b>	<b>Purpose of Facility / Tool / Equipment</b>
3D Studio, Photoshop, GIMP, Inkscape, Paint.Net	Asset development tools
APT / Intranet	Repository of project work products
Microsoft Products (e.g., Word, Excel, PowerPoint)	Documentation, Presentations, etc.
Premiere Ready Conference	Conference calls for external team members

## 5 Detailed Phase Descriptions

During each of the life cycle phases, the team follows the Team's Process – a modified Agile method similar to Scrum. The internal development team works on a minor iteration cycle that begins/ends on Wednesday. At the beginning of each iteration, team members chose tasks for that iteration. Team members coordinate with the PE when task assignments need to change. Team members report their status against tasks at daily stand ups which include: what happened yesterday, what is intended today, and impediments. Major tasks are recorded or tracked in Trac, the SRD, or through external communication with stake holders. The entire project is separated into five discrete phases.

### 5.1 Phase 1 - Initiation

During initiation, the team is formed. Sub contracts are established and a major kickoff occurs with the ONR Program sponsor. In addition, the requirements begin to be formulated and a StoryJam will be held. The StoryJam™ is a key part of the requirements gathering phase – it is an open process that will involve 25+ representatives from partners and customers. The Alion team will begin laying the foundation for future software development.

The primary purpose of Initiation is to start strong to ensure the success of future phases.

#### 5.1.1 Work Products / CDRLs

Deliverables include: ONR Kickoff brief and Storyjam Document

#### 5.1.2 Reviews

Kickoff brief is reviewed and iterated by core members of the team including internal and external.

### 5.2 Phase 2 – Iteration 1

Real design and development begins in Iteration 1. The StoryJam feeds into scenario design. Core instructional analysis is begun and the elements of the scenario are fleshed out. The Software Requirements Document is developed and core software development begins in earnest.

The primary purpose of Iteration 1 is to develop a functional prototype that can be demonstrated to our customers at I/ITSEC.

### **5.2.1 Work Products / CDRLs**

Deliverables include: the Software Requirements Document (SRD), the Scenario Design Document (SDD), and the first prototype iteration.

### **5.2.2 Reviews**

During this iteration, reviews will be frequent and numerous. All deliverables and interim work products are reviewed by appropriate stake holders as described above in the Reviews section.

## **5.3 Phase 3 – Iteration 2**

Design and development continues in Iteration 2. The scenario design and instructional analysis are finalized. The research plan is fleshed out in preparation for the research to be conducted in Iteration 3. The Software Requirements Document (SRD) and Scenario Design Document (SDD) are updated as needed. Core software development continues on the prototype.

The primary purpose of Iteration 2 is to develop a functional prototype that can be used for research during Iteration 3.

### **5.3.1 Work Products / CDRLs**

Deliverables include: updates to the SRD, updates to the SDD, the initial research plan, and the second prototype iteration.

### **5.3.2 Reviews**

During this iteration, reviews will be frequent and numerous. All deliverables and interim work products are reviewed by appropriate stake holders as described above in the Reviews section.

## **5.4 Phase 4 – Iteration 3**

Design and development finishes in Iteration 3. The research plan is finalized and research is conducted with transition customers (tentatively Langley and Portsmouth). Core software development finishes.

The primary purpose of Iteration 3 is to finalize the functional prototype and execute research studies.

### **5.4.1 Work Products / CDRLs**

Deliverables include: the final research plan, and the third prototype iteration.

### **5.4.2 Reviews**

During this iteration, reviews will be frequent and numerous. All deliverables and interim work products are reviewed by appropriate stake holders as described above in the Reviews section.

## 5.5 Phase 5 – Conclusion

The research is formalized. The final report is written and delivered. The software executable and source are packaged and delivered to ONR and transition customers.

The primary purpose of the Conclusion phase is to ensure the project is closed correctly.

### 5.5.1 Work Products / CDRLs

Deliverables include: the final prototype and source materials, the final reports, and the research reports.

### 5.5.2 Reviews

During this iteration, reviews are narrowed in scope to the final reports and research material. The deliverables are reviewed to reflect deliverable requirements.

## 6 Configuration Management

All source materials and major deliverables are managed via configuration control. Products will be stored in a combination of SVN, the Project Repository (SWEG-Files), email, and Trac. Products that are reviewed by multiple people are distributed via email, shared repository, APT, or SVN and are updated as appropriate. Configuration control for work products other than source code occurs manually (i.e., revision dates, naming constructs, and version numbers). Source code and asset revisions are managed via Subversion (SVN) and are available to internal team members from this repository. Customer reviews occur when possible and appropriate (noted as ‘Customer Review’ board). Although it is desired, it is not always possible to get feedback or direct customer review from customers. ‘Team Review’ means a member of Alion or one of our partners. ‘Internal’ designates members of Alion only.

**Table 13 Release Criteria**

Phase	Product	Criteria 1	Criteria 2	Criteria 3	Criteria 4
1	PMP	PE Review	PPQA Review	SPM Review/Approval	
1	Project Processes - Tailored	PE Review	PPQA Review		
Multiple	PPQA Audits	PE Review			
2	Requirements	Peer Review Complete per PMP	Traceability Matrix Complete & Accurate	Requirements Consistent with design & implementation	Requirements Commitments Attained
2	Design	Design Complete to level of detail to proceed with code	Design Peer Review Complete per PMP	Requirements & Architecture reviewed & updated consistent w/design	Test Cases complete
Multiple	Code	Code Peer Review complete per PMP	Unit Level Testing complete & results captured	Actions from Design Review complete	

		in PAR	
Multiple	Reports	Reviewed per PMP	Actions from Code Review Complete

## ***6.1 Review Board***

Release products are reviewed as described above. Given that this is a research and prototype development effort, an official review board is not required for this project.

## ***6.2 Configuration Items and Baselines***

Release products are reviewed and managed per the review, release, and CM guidelines above. As this effort is not built upon existing formal deliverables, baselines do not yet exist. Software executables will be released in three iterations as described above in the phases.

## Appendix A: Process and Product Quality Assurance (PPQA)

To provide an objective evaluation of both processes used and products produced, the EPG PPQA team will be invited to all product reviews and an independent representative will be asked to review and provide feedback on the overall process established through this PMP. Quality Assurance Reviews and Reports / Evaluations will be performed on the following products and processes as noted in **Error! Reference source not found.**

**Table 14 PPQA Planned Audits**

Product / Process to be Audited	Report / Evaluation	Frequency
PMP	Edits / Initialed by PPQA Lead	1 <sup>st</sup> /Approved Version
Status Reports	Informal (email)	First Report plus 2 more
SPM Briefs	Informal - Reflected in Compliance Reports	First Brief; periodically
Reviews (Peer, IPTs, FST Execution, etc.)	Informal - Reflected in Compliance Reports	Periodically (at least 2 Exercises)
Metrics	Reflected in Compliance Reports	Periodically
Contract/SOW Deliverables	Reflected in Compliance Reports	Periodically

In addition, the EPG PPQA Team will conduct an audit at least once per year and review/approve project and service Quality Engineer (QE) audits (at least twice per year) and produce Compliance Rating Reports detailing commendable observations and noncompliance descriptions. These reports are reviewed and initialed by the PPQA Lead and the PE and then stored in the Project Repository (APT) and the AMSTO PPQA Repository (also on the APT).

In accordance with the AMSTO Operation Tailoring Process Guidelines, the Tailoring Matrix below has been completed by the PPQA Lead and reviewed by the Senior Project Manager and Project Engineer. This table identifies the AMSTO Operation Processes (version and date identifier) that apply to this project and identifies any required and approved process tailoring. Baseline organization and tailored processes are maintained in the Project Asset Library (PAL) and tailored/approved processes are uploaded to the APT.

**Table 15 Processes Utilized (Process Tailoring Matrix)**

Process Identifier	Status (U=Use, T=Tailor)	Comments for Tailoring
CM Process	U	
Conduct Mtg. Process	U	
Costing Process	U	
DAR	U	
DSGN	U	
IMPL	U	
INTG	U	
MA Process	U	
PMC/WMC Process	U	
PMP Criteria	U	

*Safe Surgery Trainer - PMP*

Process Identifier	Status (U=Use, T=Tailor)	Comments for Tailoring
PP/WP Process	U	
PPQA Guidelines	U	
PPQA Process	U	
Proj. Init Process	U	
Release Change Approval Process	U	
REQM Process	U	
RD Process	U	
RSKM Guidelines	U	
RSKM Process	U	
SAM Process		
Tailoring Process	U	
CAM. Process		
IRP Process		
SCON Process	U	
SD Process		
SSD Criteria		
SST Process		
IPM/IWM Process	U	

## Appendix B: Glossary

An alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

Acronym / Abbreviation	Definition
APT	Alion Project Management Tool
CM	Configuration Management
CI	Configuration Items
CM	Configuration Management
CMMI	Capability Maturity Model Integrated
CMP	Configuration Management Plan
DD	Design Document
PAL	Process Asset Library
PE	Project Engineer
PM	Project Manager
PMP	Project Management Plan
PMTWS	Project Management Tool Web Site
PPQA	Process and Product Quality Assurance
QA	Quality Assurance
QAP	Quality Assurance Plan
RB	Review Board
RMP	Risk Management Plan
SDD	Scenario Design Document
SRD	Software Requirements Document
SEMP	Systems Engineering Management Plan